

TOOL AND WORK MATERIAL STORAGE DEVICE
FOR USE IN ASSOCIATION WITH ELEVATED STRUCTURES

INVENTORS

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BACKGROUND

[0001] The subject invention generally and in various embodiments relates to devices for supporting objects such as tools and work materials, for example, in connection with work performed on elevated structures.

[0002] In many commercial and industrial settings, work sites at which work is performed may be associated with utility structures or other elevated structures. Scaling such elevated structures is often required by workers performing maintenance, installation and/or other related functions on equipment located at such elevated work sites. In elevated work environments, it may be difficult for workers to manipulate work tools or perform work on equipment at the work site, while also maintaining a reasonably stable physical position on a utility pole, for example, or another elevated structure at the work site.

[0003] It can be appreciated that commercial entities and other organizations that employ workers in elevated environments are aware of the potential risks attendant upon work performed in such environments. In view of this awareness, commercial entities and other organizations devote time and resources to promote the safety of workers in elevated environments to make work conditions as safe as possible. Promoting worker safety in elevated environments may involve instituting intensive training programs and/or providing workers with a variety of support devices, support systems, backup devices and systems, and/or other

strategies for promoting the stability and safety. Despite the best efforts of an organization to enhance the safety of its workers and reduce the risks presented by tools, work materials, or other objects potentially descending from elevated structures, for example, it is nonetheless difficult to eliminate all risks to workers performing work on such elevated structures.

[0004] In certain industry practices, service technicians may work aloft performing installation and maintenance duties such as on aerial cables and utility poles, for example. Tools and work materials can be difficult to retrieve, manipulate and/or return to their storage locations in view of the limited space and mobility available in such elevated environments. Conventional practice for a service technician may involve the use of small bags and/or tool belts attached to the climbing belt of the service technician. The bag is used for storing relatively small items such as nuts and bolts, for example. Storage space in the bag is limited, however, and particularly small items may sift to the bottom of the bag making them difficult to locate and retrieve. The tool belt is used for holding comparatively larger tools/materials such as hammers and screwdrivers, for example. The tool belt is not flexible in its application, however, because each tool must be returned to its proper location in the belt after each use to reduce the risk of dropping the tool. It can be appreciated that dropped tools result in lost productivity or potential safety issues for the service technician.

[0005] Based on the foregoing discussion, it can be seen that improved devices are needed for supporting and storing objects such as tools and work materials, for example, used in elevated work environments.

SUMMARY

[0006] In various embodiments of the present invention, a storage device structured for use in operative association with a cable connected to at least a portion of an elevated structure is provided. The storage device comprises a base including a tool tray portion and a storage bin portion; at least one pedestal connected to the base; at least one hanger connected to at least one pedestal, the hanger structured for receiving at least a portion of the cable therein; and, the storage device being structured to be suspendable from the cable.

[0007] In other embodiments of the present invention, a storage device structured for use in connection with a cable connected to at least a portion of an elevated structure is provided. The storage device comprises a base including a tool tray portion and a storage bin portion, wherein the tool tray portion includes at least one tool-receiving opening formed therein, wherein the storage bin portion includes at least one partition forming at least one compartment therein; at least one pedestal connected to the base; at least one hanger connected to the pedestal, the hanger structured for receiving at least a portion of the cable therein, wherein the hanger includes a quick-release device operatively associated therewith; a handle connected to a portion of the pedestal; at least one loop connected to at least one of the pedestal and the handle; at least one accessory hook connected to the base; and, the storage device being structured to be suspendable from the cable.

[0008] In other embodiments of the present invention, a storage device structured for use in connection with a cable connected to at least a portion of an elevated structure is provided. The storage device comprises a base including a tool tray portion and a storage bin portion, wherein the tool tray portion includes at least one tool-receiving opening formed therein, wherein the storage bin portion includes at least one partition positioned therein; at least one pedestal

connected to the base, wherein at least one pedestal is removably connected to the base; at least one hanger connected to at least one pedestal, the hanger structured for receiving at least a portion of the cable therein, wherein at least one hanger includes a quick-release device operatively associated therewith, and further comprising a liner connected to a portion of at least one hanger; a handle connected to a portion of at least one pedestal; at least one loop connected to at least one of the pedestal and the handle; at least one accessory hook connected to the base; and, the storage device being structured to be suspendable from the cable.

[0009] Other systems, methods, and/or computer program products according to embodiments will be or become apparent to one with skill in the art upon review of the following drawings and detailed description. It is intended that all such additional systems, methods, and/or computer program products be included within this description, be within the scope of the present invention, and be protected by the accompanying claims.

BRIEF DESCRIPTION OF THE FIGURES

[0010] Figure 1 includes a top view illustrating various aspects of a storage device provided in accordance with the present invention;

[0011] Figure 2 includes a front view illustrating various aspects of a storage device provided in accordance with the present invention;

[0012] Figure 3A includes an end view illustrating various aspects of a storage device provided in accordance with the present invention;

[0013] Figure 3B includes an end view illustrating various aspects of a storage device provided in accordance with the present invention;

[0014] Figure 4 includes a front view illustrating various aspects of a storage device provided in accordance with the present invention; and,

[0015] Figure 5 includes a front view illustrating various aspects of a storage device provided in accordance with the present invention.

DESCRIPTION

[0016] As used herein, the term “elevated structure” includes, for example and without limitation, telephone poles and other utility structures for supporting utility related equipment and services such as, for example, telephone services, Internet services, electricity services and/or television/cable services; scaffolding; radio towers; oil rigs; buildings; construction sites for buildings and other related erections; structures that require elevation of a worker; and/or any other elevated structures suitable for use in association with one or more of the various embodiments discussed herein.

[0017] As used herein, the term “cable” includes, for example and without limitation, metal wire (e.g., copper wire), telephone line, fiber optic cable, telecommunications cable, electrical transmission/distribution lines, lines for promoting support of elevated structures (e.g., guide wires), and/or any other type of cable suitable for application to one or more aspects of the present invention, such as a cable attached to an elevated structure, for example.

[0018] As used herein, the term “tool” includes any implement or other apparatus or device for performing work and/or assisting with the performance of work. In various aspects of the present invention, a suitable “tool” is capable of being stored or maintained in various embodiments of a storage device as described hereinafter in accordance with the present invention. Examples of tools include, without limitation, screwdrivers, wrenches, hammers,

pliers, sheath cutters, and a variety of other tools suitable for use in association with work performed on an elevated structure.

[0019] As used herein, the term “work material” includes material used on equipment at a work site or material that can be manipulated by a tool (see above definition of “tool”). Examples of “work material” include, without limitation, nuts, bolts, screws, wire, splice closures, clamp devices and a variety of other work materials suitable for use in association with work performed on an elevated structure.

[0020] Referring now to Figures 1, 2, 3A and 3B, various aspects of a storage device 2 provided in accordance with the present invention are shown. It can be seen that the storage device 2 is structured for use in operative association with at least a portion of a cable 4 connected to at least a portion of an elevated structure 6. The storage device 2 is further structured to be suspendable from the cable 4 for use with work performed at a work site associated with the elevated structure 6.

[0021] In various aspects, the storage device 2 includes a base 8 having a tool tray portion 10 and one or more storage bin portions 12, 14 formed therein. In certain embodiments, as shown, the storage bin portions 12, 14 include one or more partitions 16A, 16B, 16C to form a plurality of compartments (such as compartments 18A, 18B, 18C, 18D, 18E, 18F, for example) within one or both of the storage bin portions 12, 14. It can be appreciated that the compartments 18A, 18B, 18C, 18D, 18E, 18F are useful for storage and retrieval of relatively small pieces of work material such as small nuts, bolts, or screws, for example. In certain aspects, the tool tray portion 10 includes one or more tool-receiving openings (such as tool-receiving openings 20A, 20B, 20C, 20D, for example) formed therein. In various aspects, the tool-receiving openings 20A, 20B, 20C, 20D are appropriately sized to receive and maintain

therein a tool or a portion of a tool, such as the handle of a hammer or a screwdriver, for example.

[0022] In other aspects, one or more tools may be placed in the tool tray portion 10 without use of the tool-receiving openings 20A, 20B, 20C, 20D. A hammer, for example, is one kind of tool that can be placed and supported within the tool tray portion 10 without use of the tool-receiving openings 20A, 20B, 20C, 20D. In certain aspects, the tool tray portion 10 includes a generally upwardly depending lip 22 extending from the tool tray portion 10 to promote storage and retention of tools and/or work materials placed within the tool tray portion 10.

[0023] In other aspects of the present invention, one or more accessory hooks 24, 26 are connected to the base 8. It can be appreciated that a variety of supported items may be hung from the accessory hooks 24, 26 to facilitate use of those items during work performed on the elevated structure 6. Such items may include tools having suitable devices (e.g., a loop of wire or thread) for hanging the tools from the accessory hooks 24, 26. Another example of a supported item is a test set employed to perform tests on equipment associated with the elevated structure 6. In one aspect, the test set includes a belt or strap that permits the test set to be hung from one of the accessory hooks 24, 26.

[0024] In addition, in various aspects of the present invention, one or more pedestals 28, 30 are connected to the base 8. In various aspects, the pedestals 28, 30 are removably connected to the base 8 such as by use of a threadedly removably connection (such as the threaded connection 31, as shown for the pedestal 28 in Figure 2, for example). It can be appreciated that removal of one or more of the pedestals 28, 30 permits the base 8, including the tool tray portion 10 and the storage bin portions 12, 14, to serve as a stand-alone tool / work material storage and/or transportation device. In other aspects, the pedestals 28, 30 are divided

into at least first and second portions connected by use of hinges 32, 34, for example. In certain aspects, the first portion 30A of the pedestal 30, for example, is hingedly connected by the hinge 34 to the second portion 30B of the pedestal 30. It can be seen that the hinges 32, 34 permit the storage device 2, when not suspended from the cable 4 for use with work performed on the elevated structure 6, to be readily collapsed and transported to another work site, for example. In other aspects, at least one loop 36 is connected to at least one of the pedestals 28, 30 to facilitate moving the storage device 2 from a ground elevation to a work site elevation on the elevated structure 6, for example. Movement of the storage device 2 can be achieved by securing a wire or rope to the loop 36, for example, and pulling the storage device 2 to the work site elevation.

[0025] In other aspects of the present invention, one or more hangers 42, 44 are connected to each of the pedestals 28, 30 (respectively). The hangers 42, 44 are structured for receiving at least a portion of the cable 4 therein. In certain aspects, the hangers 42, 44 include quick-release devices 46, 48 operatively associated therewith to facilitate securement or removal of the storage device 2 from a suspended position on the cable 4. In other aspects, each of the hangers 42, 44 includes liners 50, 52 (respectively) connected to portions of the hangers 42, 44. In certain aspects, at least one of the liners 50, 52 such as the liner 50, for example, is structured to be positioned between an interior surface portion 42A of the hanger 42 and a portion of the cable 4. In various aspects, the material comprising the liners 50, 52 includes a frictional material such as, for example, rubber, foam, a grit-laden substance, or other like material that serves to resist movement of the suspended storage device 2 along the cable 4.

[0026] Referring now to Figures 4 and 5, in other aspects of the present invention, a handle 56 is connected to a portion of at least one of the pedestals 28, 30. In one exemplary aspect shown in Figure 4, the handle 56 bridges the pedestals 28, 30 to provide for manual

transportation, for example, of the storage device 2. In another exemplary aspect shown in Figure 5, a handle 62 may span portions of the base 8 for use in applications where removal of one or more of the pedestals 28, 30 permits the base 8 to serve as a stand-alone tool / work material storage and/or transportation device (see above). In other aspects, loops 58, 64 are attached to the handles 56, 62 (respectively) to facilitate attachment of the storage device 2 to a utility belt of a service technician, for example (not shown), or otherwise to permit the storage device 2 to be raised from a first elevation to a second elevation in association with work performed on the elevated structure 6.

[0027] It can be appreciated that choice of materials for construction/manufacture of the various structural elements disclosed herein is driven, at least in part, by the motivation to provide embodiments of the invention that are relatively lightweight, relatively compact, readily manipulated and structurally sound. It can be further appreciated that such materials are selected to promote convenience of transportation and manipulation of the various aspects and components of the present embodiments in association with work performed on elevated structures, for example. The composition of the base 8 and its operatively associated components, for example, may include a lightweight and resilient material such as aluminum, PVC plastic, or another suitable material.

[0028] The examples presented herein are intended to illustrate potential implementations of the present invention. It can be appreciated that such examples are intended primarily for purposes of illustration. No particular aspect or aspects of the embodiments described herein are intended to limit the scope of the present invention.

[0029] It is to be understood that the figures and descriptions of the present invention have been simplified to illustrate elements that are relevant for a clear understanding of the

present invention, while eliminating, for purposes of clarity, other elements. Those of ordinary skill in the art will recognize, however, that these and other elements may be desirable. Because such elements are well known in the art, however, and because they do not facilitate a better understanding of the present invention, a discussion of such elements is not provided herein.

[0030] It can be appreciated that, in some embodiments of the present invention, a single component can be replaced by multiple components, and multiple components replaced by a single component, to perform a given function. Except where such substitution would not be operative to practice the present invention, such substitution is within the scope of the present invention.

[0031] Whereas particular embodiments of the invention have been described herein for the purpose of illustrating the invention and not for the purpose of limiting the same, it can be appreciated by those of ordinary skill in the art that numerous variations of the details, materials and arrangement of parts may be made within the principle and scope of the invention without departing from the invention as described in the claims.